

Listing of Claims

1-25 (canceled)

26. (new) A light metal cylinder crankcase for a combustion engine, the cylinder crankcase comprising:

casting material; and

cylinder bushings, each cylinder bushing having a running layer that forms a running surface and a rough external bonding layer for bonding the cylinder bushing to the cylinder crankcase while pouring the cylinder crankcase;

wherein at least 60% of the bonding layer relative to the jacket surface of the bonding layer is connected with the casting material of the cylinder crankcase in a material tight manner.

27. (new) The cylinder crankcase according to claim 26 wherein the level of material tight bond between the bonding layer and casting material measures at least 90%.

28. (new) The cylinder crankcase according to claim 26 wherein the bonding layer has a layer thickness

of 50 μm to 800 μm .

29. (new) The cylinder crankcase according to claim 26 wherein the bonding layer has an open porosity generated by thermal spraying.

30. (new) The cylinder crankcase according to claim 29 wherein the open porosity of the bonding layer measures at least 10%v/v.

31. (new) The cylinder crankcase according to claim 26 wherein the bonding layer and the casting material each comprises an aluminum or magnesium alloy.

32. (new) The cylinder crankcase according to claim 31 wherein the running layer comprises an aluminum or magnesium alloy.

33. (new) The cylinder crankcase according to claim 31 or 32 wherein:

the running layer of the cylinder bushing comprises an aluminum-silicon alloy with a high silicon content;

the casting material of the cylinder crankcase comprises an aluminum-silicon alloy with a low silicon content; and

the bonding layer comprises an aluminum-silicon alloy with a silicon content lying between the silicon content of the running layer and the silicon content of the casting material.

34. (new) A procedure for manufacturing a cylinder bushing for a light metal cylinder crankcase for a combustion engine, the cylinder crankcase having casting material and cylinder bushings, each bushing having a running layer that forms a running surface and a rough external bonding layer for bonding the cylinder bushing to the cylinder crankcase while pouring the cylinder crankcase, wherein at least 60% of the bonding layer relative to the jacket surface of the bonding layer is connected with the casting material of the cylinder crankcase in a material tight manner, the procedure comprising:

thermally spraying the running layer on a mandrel, the mandrel serving as a molded part; and

thermally spraying the bonding layer on the running layer, wherein the bonding layer is thermally sprayed

in such a way that the bonding layer has an open porosity of at least 10% v/v.

35. (new) The procedure according to claim 34 wherein the thermally spraying the bonding layer comprises spraying the bonding layer with a spraying powder having an average grain size of between 60 μm and 400 μm .

36. (new) The procedure according to claim 34 wherein the thermally spraying the bonding layer comprises flame spraying or plasma spraying.

37. (new) The procedure according to claim 35 wherein the thermally spraying the bonding layer further comprises flame spraying or plasma spraying.

38. (new) The procedure according to claim 34 wherein the thermally spraying the running layer comprises spraying a material comprising an aluminum-silicon alloy.

39. (new) The procedure according to claim 38 wherein the spraying material further comprises an additional alloy constituent selected from the group consisting of:

- a. iron;
- b. nickel;
- c. magnesium; and
- d. copper,

the constituent amounting to 0.5 to 2% w/w of the alloy.

40. (new) The procedure according to claim 38 wherein the aluminum-silicon alloy has a silicon content of 12 to 50% w/w.

41. (new) The procedure according to claim 40 wherein the spraying material further comprises an additional alloy constituent selected from the group consisting of:

- a. iron;
- b. nickel;
- c. magnesium; and
- d. copper,

the constituent amounting to 0.5 to 2% w/w of the alloy.

42. (new) The procedure according to claim 34 wherein the thermally spraying the running layer comprises spraying powder having a grain size of less than 150 μm .

43. (new) The procedure according to claim 34 further comprising thermally spraying a carrier layer onto the mandrel before the thermally spraying the running layer.

44. (new) The procedure according to claim 43 further comprising removing the carrier layer from the running layer via machining.

45. (new) The procedure according to claim 44 wherein the removing the carrier layer comprises removing the carrier layer after the running layer of the cylinder bushing poured into the cylinder crankcase has been sized to its cylindrical operating dimensions via machining.

46. (new) The procedure according to claim 43 wherein the carrier layer comprises a constituent from the group consisting of:

- a. tin;
- b. zinc;
- c. aluminum; and
- d. an alloy of 2 or more of a-c.

47. (new) The procedure according to claim 46 further comprising removing the carrier layer from the running layer via machining.

48. (new) The procedure according to claim 47 wherein the removing the carrier layer comprises removing the carrier layer after the running layer of the cylinder bushing poured into the cylinder crankcase has been sized to its cylindrical operating dimensions via machining.

49. (new) The procedure according to claim 43 wherein the thermally spraying the carrier layer comprises rotating the mandrel.

50. (new) The procedure according to claim 49 wherein the thermally spraying the bonding layer comprises rotating the mandrel.

51. (new) The procedure according to claim 34 wherein the thermally spraying the bonding layer comprises rotating the mandrel.

52. (new) The procedure according to claim 34 further comprising shrinking the mandrel via quenching before the mandrel is removed from the still-heated thermally sprayed cylinder bushing.

53. (new) The procedure according to claim 34 further comprising subjecting the cylinder bushing to heat treatment at a temperature of between 300°C and 550°C.

54. (new) A procedure for manufacturing a light metal cylinder crankcase for a combustion engine, the cylinder crankcase having at least one cylinder bushing having a running layer that forms a running surface and a rough external bonding layer for bonding the cylinder bushing to the cylinder crankcase while pouring a cylinder crankcase smelt, the cylinder bushing manufactured by thermally spraying the running layer on a mandrel serving as the molded part, wherein at least 60% of the bonding layer relative to the jacket surface of the bonding layer is connected with the casting material of the cylinder crankcase in a material tight manner, the procedure comprising thermally spraying the bonding layer on the running layer in such a way that the bonding layer has an open porosity of at least 10% v/v;

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wherein the temperature of the smelt exceeds the melting point of the bonding layer while pouring the cylinder crankcase.

55. (new) The procedure according to claim 54 further comprising pouring the cylinder crankcase using a pressure-assisted procedure.

56. (new) The procedure according to claim 55 wherein the pouring is performed at a gating rate exceeding 1 m/sec.